

L20 ANSWER 31 OF 47 USPATFULL

ACCESSION NUMBER: 95:58256 USPATFULL

TITLE: Complexes of functionalized tetraazacyclododecane
chelates with bismuth, lead, yttrium, actinium, or
lanthanide metal ions

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	NUMBER	KIND	DATE	
PATENT INFORMATION:	US 5428154		19950627	<--
APPLICATION INFO.:	US 1993-140714		19931022	(8)
RELATED APPLN. INFO.:	Continuation of Ser. No. US 1992-815956, filed on 2 Jan			

No. 1992, now abandoned which is a continuation of Ser.

US 1988-198538, filed on 25 May 1988, now abandoned

DOCUMENT TYPE: Utility

FILE SEGMENT: Granted

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NUMBER OF CLAIMS: 8

EXEMPLARY CLAIM: 1

LINE COUNT: 448

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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SUMM . . . tetraacetic acid (EDTA), useful for binding metals other than
copper, such as Indium. These compounds are useful for imaging of
tumors.

SUMM The usefulness of radionuclide materials in **cancer** therapy is
disclosed in the article, Kozak et al., "Radionuclide-conjugated
monoclonal antibodies: A Synthesis of Immunology, in Organic Chemistry
and. . .

SUMM . . . from the group consisting of hormones, steroids, enzymes, and
proteins. These haptens are desirable because of their site specificity
to **tumors** and/or various organs of the body. The preferred
hapten for use in treating cellular disorders or various disease
conditions is. . .

SUMM An embodiment of the invention involves a **ligand-**
hapten conjugate of formula II: ##STR9## This
conjugate chelates metal ions. It is desirable to expose many metals to
the protein conjugate. . . conjugate. The kinetics of the formation
reactions for these compounds are so rapid that it is desirable to have
the **ligand-hapten conjugate** available in
the pharmacy immediately prior to use. The conjugate can then be mixed
in the radionuclide to form a . . . subsequently, the metal chelate
conjugate formed can be purified by, for example, size exclusion high
pressure liquid chromatography. A desirable **hapten** for the
ligand conjugate can be selected from the group
consisting of hormones, steroids, enzymes, and proteins.

SUMM . . . Q can be a monoclonal antibody, wherein the antibody is
directed and created against an epitope found specifically on the

tumor cells. Thus, when Pb.sup.212 is transported to the antigen site and, subsequently, decays in secular equilibrium to Bi.sup.212 and its. . . be easily reached within the 1 hour half-life of Bi.sup.212.

It is also possible to use this method to treat **cancers**, where the cells are widely differentiated. This might be preferred where only a long-range beta emitter, such as Y.sup.90, is. . .

SUMM . . . diagnostic tool. Thus, when Pb.sup.203 is linked by use of the chelate to a hapten, which specifically localizes in a **tumor**, then that particular localization can be three dimensionally mapped for diagnostic purposes in vivo by single photon emission tomography. Alternatively,. . .

DETD . . . to treat adult T-cell leukemia in mammals. T-cell leukemia is characterized by extraordinarily large amounts of IL-2 receptors on the **tumor** cells. The antibody localizes specifically to these **tumor** cells to deliver its radiation.

DETD . . . antibody B72.3, which binds specifically to a glycoprotein on LS-174T cells. This glycoprotein is also in humans who have colon **cancer**. The model system of this example is an athymic mouse, into which has been implanted LS-174T cells to develop a **tumor** on the flank of the animal where the cells were implanted. The diagnostic method used to visualize the growing **tumor** involves the following components. The chelate of compound 12 is first coupled to

gadolinium or Pb.sup.203 by mixture of the. . .

DETD . . . is injected or introduced into body fluids of a mammal. The gadolinium then localizes along with the antibody to the **tumor** and conventional resonance magnetic imaging techniques are used to visualize the **tumor**.

DETD . . . metal-labeled protein conjugate is similarly introduced into the mammal, but gamma camera or SPECT imaging is used to visualize the **tumor**.